a portion having a machined surface exposed to the process chemistry used in the semiconductor fabrication apparatus, wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater.

2. (Three times Amended) A gas distribution plate as recited in claim 1 wherein [the] micro-defects within the plurality of drilled holes are substantially eliminated before implementation within the semiconductor fabrication apparatus.

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3. (Once Amended) A gas distribution plate as recited in claim 1 wherein the micro-defects are substantially eliminated by heating the portion.

4. A gas distribution plate as recited in claim 1 wherein the portion includes at least one surface of the distribution plate which is exposed to the internal regions of the semiconductor processing chamber.

5. (Twice Amended) A gas distribution plate as recited in claim 1 wherein, during its operation, the gas distribution plate produces less than 0.1 particle defects per square centimeter for a wafer processed in the semiconductor fabrication apparatus over the entire operating life of the gas distribution plate.

6. A gas distribution plate as recited in claim 1 wherein the gas distribution plate does not substantially diminish wafer yield over the entire operating life of the gas distribution plate.

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7. (Once Amended) A gas distribution plate as recited in claim 6 further comprising at least one distribution channel, wherein the at least one distribution channel is machined to a back face of the gas distribution plate.

8. (Once Amended) The gas distribution plate as recited in claim 1 wherein the gas distribution plate includes a material whose products from reacting with the process chemistry used in the semiconductor fabrication apparatus are gaseous.

9. The gas distribution plate as recited in claim 1 wherein the gas distribution plate includes a ceramic material.

10. A gas distribution plate as recited in claim 9 wherein the plate includes one of Si_3N_4, Al_2O_3 , AlN and SiC.

11. A gas distribution plate as recited in claim 9 wherein the ceramic material is included in a portion of the gas distribution plate which faces the semiconductor processing chamber.

12. (Twice Amended) A plasma-based fabrication apparatus, comprising:

a plasma chamber that receives process gases and forms a plasma therefrom; and

a gas distribution plate including a plurality of holes that supply the process gases into said plasma chamber, a portion of said gas distribution plate having a machined surface and being exposed to the process chemistry used in said plasma chamber, wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater and wherein said gas distribution plate is pretreated by heating at a controlled temperature between about 1500 degrees Celsius to 1600 degrees Celsius for a prolonged time.

13. (Once Amended) A plasma-based fabrication apparatus as recited in claim 12 wherein said plasma-based fabrication apparatus fabricates semiconductor devices.

14. (Once Amended) A plasma-based fabrication apparatus as recited in claim 12 wherein said plasma-based fabrication apparatus is a semiconductor etch machine.

18. (Once Amended) A plasma-based fabrication apparatus as recited in claim 12 wherein the prolonged time is from about 5 to 10 hours.

40 ~~19~~. (New) A plasma-based fabrication apparatus, as recited in claim 12, wherein the plurality of holes are a plurality of drilled holes, wherein the pretreating by heating is done after formation of the plurality of drilled holes.

41 ~~20~~. (New) The plasma based fabrication apparatus, as recited in claim ~~19~~ 40, wherein the pretreating by heating eliminates micro-defects on surfaces of the plurality of drilled holes.

42 ~~21~~. (New) A gas distribution plate as recited in claim 1 wherein micro-defects on surfaces of the plurality of drilled holes are substantially eliminated by heating the portion.